

AMENDMENTS TO CLAIMS

1. (Previously presented) A method for recovering nylon from a nylon-containing material, comprising:

contacting the nylon-containing material with an alkanol-containing solvent at elevated temperature below 155 °C and at a pressure higher than the equilibrium vapor pressure of the alkanol-containing solvent at the elevated temperature for a dissolution time of 45 minutes or less, thereby dissolving the nylon in the alkanol-containing solvent;

removing the alkanol-containing solvent containing dissolved nylon from any undissolved solids; and

decreasing the temperature of the alkanol-containing solvent containing dissolved nylon to precipitate the dissolved nylon.
2. (Original) The method of claim 1, wherein the nylon-containing material comprises a floor covering material.
3. (Original) The method of claim 1, wherein the nylon is nylon 6,6.
4. (Original) The method of claim 1, wherein the alkanol-containing solvent is substantially free of glycols or other polyols.
5. (Original) The method of claim 1, wherein the alkanol-containing solvent comprises an alkanol selected from the group consisting of methanol, ethanol, propanols, butanols, and mixtures thereof.

6. (Original) The method of claim 1, wherein the alkanol-containing solvent comprises a mixture of alkanol and water.
7. (Original) The method of claim 6, wherein the alkanol is present in an amount ranging from about 40 wt% to about 90 wt% of the solvent.
8. (Original) The method of claim 7, wherein the alkanol-containing solvent comprises a mixture of about 80 wt% ethanol in water.
9. (Original) The method of claim 1, wherein the pressure during the contacting ranges from about 250 psig to about 600 psig.
10. (Original) The method of claim 1, wherein the elevated temperature ranges from about 130 °C to about 155 °C.
11. (Original) The method of claim 10, wherein the elevated temperature is about 145 ° C.
12. (Original) The method of claim 1, wherein the pressure higher than the equilibrium vapor pressure of the alkanol-containing solvent at the elevated temperature is attained by introducing an inert gas into the reactor.

13. (Original) The method of claim 1, wherein the pressure higher than the equilibrium vapor pressure of the alkanol-containing solvent at the elevated temperature results at least in part from the pressure head of the alkanol-containing solvent entering the reactor.

14. (Canceled)

15. (Previously presented) The method of claim 1, wherein the nylon-containing waste material comprises nylon-containing floor covering materials which comprise carpet or carpet tile, or mixtures thereof.

16. (Original) The method of claim 15, wherein the carpet or carpet tile contains nylon 6,6.

17. (Previously presented) A method for recovering nylon from a nylon-containing material, comprising:

contacting the nylon-containing material with an alkanol-containing solvent at elevated temperature between about 130 °C and about 155 °C, and at a pressure higher than the equilibrium vapor pressure of the alkanol-containing solvent at the elevated temperature, obtained by either introducing an inert gas into the reactor, increasing the pressure head of solvent entering the reactor, or both, thereby dissolving the nylon in the alkanol-containing solvent;

removing the alkanol-containing solvent containing dissolved nylon from any undissolved solids; and

decreasing the temperature of the alkanol-containing solvent containing dissolved nylon to precipitate the dissolved nylon.

18. (Previously presented) The method of claim 1, wherein the dissolution time is 37 minutes or less.

19. (Previously presented) The method of claim 18, wherein the dissolution time is 23 minutes or less.

20. (Previously presented) The method of claim 19, wherein the dissolution time is 15 minutes or less.

21. (New) A method for recovering nylon from a nylon-containing material, comprising:

contacting the nylon-containing material with an alkanol-containing solvent at elevated temperature between about 130 °C and about 155 °C and at a pressure higher than the equilibrium vapor pressure of the alkanol-containing solvent at the elevated temperature, and between about 250 psig to about 600 psig, for a dissolution time less than 45 minutes and sufficient to dissolve the desired yield of nylon, thereby dissolving the nylon in the alkanol-containing solvent;

removing the alkanol-containing solvent containing dissolved nylon from any undissolved solids; and

decreasing the temperature of the alkanol-containing solvent containing dissolved nylon to precipitate the dissolved nylon.